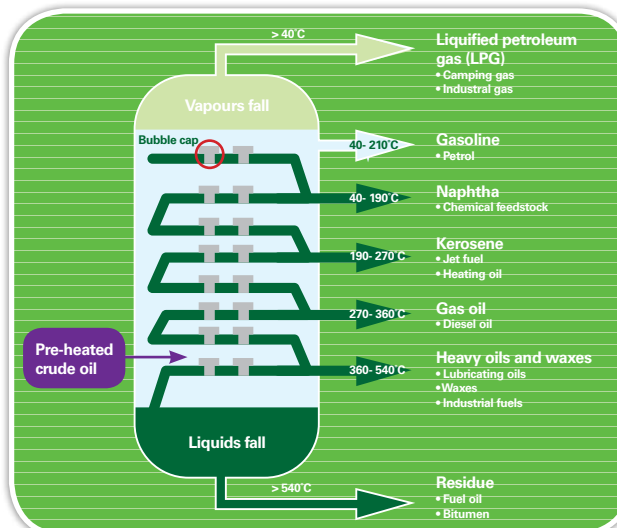


## Crude oil information sheet

### Your help is needed to:

- find out how much of each fraction the new crude oil contains
- suggest the best place to send the crude oil for refining and processing.

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### Boiling point ranges of crude oil molecules

Crude oil contains a mixture of molecules. Groups of molecules with boiling points in a certain range are known as a 'fraction'. Molecules made of longer chains have higher boiling points. Molecules with shorter chains have lower boiling points:

Fraction	Boiling point range	Fraction	Boiling point range
Naphtha	up to 149°C	Gas oil	233 – 342°C
Kerosene	150 – 232°C	Residue oil	more than 342°C

At the refinery, all the fractions are separated at the same time. The bottom of the fractionating column is hotter than the top.

But in your lab, the whole column will be at the same temperature. One fraction is distilled at a time by increasing the temperature step-by-step. The most important fraction to consider is kerosene which is used in jet fuel.

There will be a volume indicator on your equipment. This will show whether the fraction is still collecting, or if all of the fraction has now evaporated from the crude oil.

### Where to refine and process the crude oil

The best place for the crude oil will be the refinery where demand is most similar to supply, for the most important fraction. This means that the proportion of crude oil that people want as kerosene is closest to the proportion of kerosene that you find in your crude oil sample.

### Your equipment will include:

- a small fractionating column with a temperature control and volume indicator for the collection vessel.